



Name :

Roll No. :

Invigilator's Signature :

CS/M.PHARM/SEM-1/MPT-103(1)/2011-12

2011

ADVANCED PHARMACEUTICAL CHEMISTRY-I

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

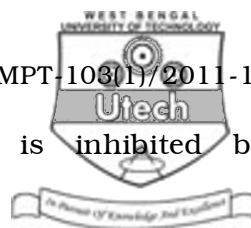
1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) 1, 2, 4-trioxane ring is present in the structure of
- a) artemether
 - b) docetaxel
 - c) fosmidonycin
 - d) lumefantrine.



- ii) Out of following four drugs which one is a prodrug ?
- a) Homocystine
 - b) Methotrexate
 - c) Cyclophosphamide
 - d) Carboplatin.
- iii) Three barbituric acid derivatives like thiopental, secobarbital and barbital all are of almost similar pKa values but one is more active than others because of
- a) greater acidity
 - b) high partition coefficient in octanol / H₂ O system
 - c) smaller molar volume
 - d) greater structural similarity with endogenous ligand.



- iv) Which of the following enzymes is inhibited by captopril ?
- a) ACE
 - b) DNA-polymerase
 - c) Xanthine oxidase
 - d) Lipoxygenase.
- v) Which of the following is the strongest bond between drug and receptor ?
- a) Ionic bonding
 - b) Hydrogen bonding
 - c) Covalent bonding
 - d) van der Waals bonding.
- vi) Lidocaine and procainamide have similar pharmacological action due to
- a) terminal amino groups
 - b) reverse amide of each other
 - c) orthosubstitution
 - d) none of these.



vii) Halofantrine, a novel antimalarial agent belongs to the class

- a) 9-Phenanthrene methanol
- b) 8-Phenanthrene methanol
- c) 5-Phenanthrene methanol
- d) 4-aminoquinoline.

viii) All of the following compounds are aromatase inhibitors *except*

- a) letrozole
- b) anastrozole
- c) 4-hydroxyandrostenedione
- d) allopurinol.

ix) A free radical alkylating drug is

- a) Carmustine
- b) Thiotepa
- c) Procarbazine
- d) Altretamine.



- x) Ritonovir is synthesized starting from
- a) Epicholrhydrin
 - b) Dioxolane
 - c) Phenyl alanine
 - d) Hydrocynnaml chloride.
- xi) Scaup synthesis is used for the synthesis of
- a) Proguanil
 - b) Quinacrine
 - c) Artether
 - d) Pamaquine.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What are the advantages and disadvantages of analogue design ?
3. Write a short note on per cent ionization.

CS/M.PHARM/SEM-1/MPT-103(1)/2011-12



4. Explain Rate Theory for drug action.
5. Briefly explain the mode of action of alkylating agent, showing how nucleophilic attack on unstable aziridine ring takes place.
6. Write a note on aromatase inhibitors.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) In the receptor binding assay, What is meant by K_d and B_{max} ? Explain in short.
b) Discuss graphical analysis of receptor binding assay.

5 + 10

8. What are the different applications of prodrugs ? Explain each application with examples.
9. Write down the chemical classification of antimalarials. Describe the life cycle of malarial protozoa. Write down the M.O.A. of chloroquine. Discuss the S.A.R. of 8-amino quinolones. Write the synthetic pathway of Pamaquine.

4 + 3 + 2 + 3 + 3



10. a) How does isosterism play an important role in the structural modification of drug ?
- b) Explain with examples the role of stereochemistry in producing the pharmacological activity. $7\frac{1}{2} + 7\frac{1}{2}$
11. a) Write briefly about structures of enzymes.
- b) What do you mean by K_{cat} inhibitors and transition state analogs ? Explain in short.
- c) Write notes on the following :
- i) ACE inhibitors
- ii) Cyclooxygenase inhibitors. $4 + 5 + (2 \times 3)$

